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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,592	11/27/2001	Raghavan Menon	VIVC001/00US	9102

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EXAMINER

JONES, PRENELL P

ART UNIT	PAPER NUMBER
2668	

2668

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

A92

Office Action Summary	Application No. 09/994,592	Applicant(s) MENON ET AL.	
	Examiner Prenell P. Jones	Art Unit 2668	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 16 September 2005.
- 2a) This action is **FINAL**.
- 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-32 and 37-82 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 1,2,7-32,37-40,43-50,55-73 and 76-82 is/are allowed.
- 6) Claim(s) 3,6,11,12,41,51,52 and 74 is/are rejected.
- 7) Claim(s) 4,5,42,53,54 and 75 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 - 1. Certified copies of the priority documents have been received.
 - 2. Certified copies of the priority documents have been received in Application No. _____.
 - 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/27/01, 6/12/02.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant is claiming in line 2, "the shifting ***is performed within a time delay less than to a total time***," which is unclear to Examiner exactly what Applicant is claiming.

Claim Objections

3. Claim 4 is objected to because of the following informalities: In line 2, Applicant is claiming "the incremental **value**", whereas in claim 3, which claim 4 depends upon, Applicant is claiming "an incremental **amount**." Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having

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ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holden (US PAT. 5,583,861) in view of Parrish (US PAT. 6,683,848) and Morley et al (US PAT 5,418,952).

Regarding claim 3, Holden discloses a switching system that includes a switch fabric, wherein cells are associated with frames, and cells are associated with frames with respect to cell priority (uniquely associated with time slot), cells are incremented with respect to cell priority (Abstract, col. 2, line 27-67, col. 8, line 48-53, col. 9, line 5-13, col. 13, line 15-25). Holden is silent on subset of cells and shifting frames. In a switching environment, Parrish discloses frame synchronization as associated in a switching environment, wherein frame pulses include plurality of time slots, occurrence of shifted frames, time slot counter increments count (col. 4, line 5-11, col. 5, line 25-43, col. 6, line 11-16), and Morley discloses a computer system that includes switching functions for processing cells, wherein multiple cells and time slots are associated with each frame and there exist subsets of all cells with respect to cell position (Abstract, col. 10, line 48-69, col. 14, line 8-10, col. 23, line 21-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to be motivated to implement on utilizing a subset of cells and shifting frames as taught by the combined teachings of Parrish and Morley with the teachings of Holden for the purpose of further minimizing interference in a communication system while processing and communicating data.

3. Claims 11 and 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vachee (US PAT 4,367,549) in view of Lindsey et al (US PG PUB 2001/0010694).

Regarding claims 11 and 12, Lindsey discloses a switching communication system whereby switch fabric is utilized in association with time division multiplexing/de-multiplexing that accommodates RTS and CTS signals (paragraph 0097). Lindsey silent on RTS and CTS associated with a frame. In a switching system that utilizes time division multiplexing/de-multiplexing, Vachee discloses in a switching system that utilizes time division multiplexing/de-multiplexing wherein frames are divided up into time slots, and transfer of data is associated with multiple input/output links, communicating RTS signals (Abstract, Fig.1 and 2, col. 2, line 54-68, col. 4, line 44-45, col. 5, line 58-68). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to be motivated to implement RTS and CTS with the teachings of Vachee with the teachings of Lindsey for the purpose of further managing the transmission and communication of control signals in a time-division multiplexing/de-multiplexing environment.

4. Claims 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Xu et al (US PG PUB 2003/0048792) in view of Norman et al (US PG PUB 2002/0181455).

Regarding claims 74, Xu discloses a switching communication system that maximizes throughput, wherein the architecture includes a switching fabric coupled to multiple inputs/outputs for routing and cell switching, wherein the architecture includes a switching fabric with a plurality of input/output ports, a centralized scheduler and distributed schedulers (paragraphs 0042-0049). Xu is silent on control path with its own rate associated with scheduler. In a cell based switched fabric architecture, Norman discloses utilizing both distributed and centralized scheduling wherein both scheduling schemes include control paths,

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wherein the control path data rate for the distributed technique is much less than the data rate of the centralized scheme (paragraph 0013, 0017, 0073, 0234-0238). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to be motivated to implement having the speed of the centralized scheduling control path greater than that of the distributed scheduling control path as taught by Norman with the teachings of Xu for the purpose of further managing network redundancy and maximizing throughput.

5. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nardin et al (US PG PUB 5,317,562) in view of Masaki et al (US PAT 5,640,389).

Regarding claim 41, Nardin discloses routing cells in a management switching system wherein the architecture includes an NTC for performing framing, cells are buffered according to priority, and timeout events occurring (Abstract, col. 5, line 11 thru col. 6, line 55, col. 8, line 68). Nardin is silent on multiple framers. In a switching system managing cell routing, Masaki discloses communicating and processing packet data wherein the architecture includes plurality of cell framers, switching fabric, wherein a selector distributes plurality of cells to cell framers (Fig. 15, col. 20, line 65 thru col. 21, line 35). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to be motivated to implement multiple framers as taught by Masaki with the teachings of Nardin for the purpose of further managing cell routing and increasing throughput.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 51-52 are rejected under 35 U.S.C. 102(e) as being anticipated by Lindsey et al (US PG PUB 2001/0010694).

Regarding claims 51 and 52, Lindsey discloses Lindsey discloses a switching communication system whereby switch fabric is utilized in association with time division multiplexing/de-multiplexing that accommodates plurality of data mux/demux cards removably and coupled to plurality of channel card/line card (Fig. 1, paragraph 0067-0068), plurality of add/drop switches, crossbar switches, router switches (Figs. 8-10 paragraph 0090, 0091, 0133) switching re-configured geometrically/mathematically (pages 16-18).

Allowable Subject Matter

1. Claims 1, 2, 7-32, 55-64, 71-73 and 76-82 are allowed over prior art.
2. Claims 4, 5, 13, 42, 53, 54 and 75 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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3. The following is a statement of reasons for the indication of allowable subject matter:

Although the prior art discloses routing in a communication system that utilizes arbitration schemes and communicating RTS data, they fail to teach or suggest with respect to claims 1-2, a switch fabric that includes a plurality of fabric gateways and an arbitration component configured to arbitrate a second plurality of RTSs, with respect to claim 5, shifted frame associated with a plurality of rows, each row associated with the shifted frame associated with an output link, respect to claims 7-10, reordering the plurality of cells within the frame to produce a shifted frame, each cell being reordered so that each row associated with the frame is uniquely associated with a time slot associated with the shifted frame, with respect to claim 13, third frame cells being next in time from the plurality of cells associated with the first frame, with respect to claim 14, a cell slot translator configured to shift, with respect to claims 15-22 & 75, switch fabric that includes control portion that is unrelated to data portion of a cell, wherein the control portion includes RTS that identify virtual output queue (VOQ) having a buffered data portion, grouping a first plurality of RTSs and a second plurality of RTSs to produce a set of grouped RTSs, and arbitrating the set of grouped RTSs to produce a plurality of selected RTSs, with respect to claims 23-25, comparators coupled to a second memory wherein the comparators are configured to compare an input port schedule value with the plurality of input port requests to produce an output port grant, each comparator from the plurality of comparators being further configured to compare an output port schedule value with a plurality of output port grants including the produced output port grant to produce an input port/output port designation, with respect to claims 26-27, a switch fabric that include grouping a plurality of RTS, forming a plurality of vectors based on the grouped RTSs, wherein each vector is associated with a timeslot representing a status of an output port request for each link, with respect to claims 28-

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32, RTSs being stored in a grouping memory and the arbitration component arbitrating concurrently the first plurality of RTSs to produce a plurality of selected RTSs, with respect to claims 37-40, data alignment controller configured to send a forwarding signal to the data storage controller at the latest receipt time associated with the plurality of data cells that is within a timeout period, with respect to claim 42, before sending plurality of cells, providing an idle cell for each cell from the plurality of cells that are not received within timeout period, with respect to claims 43-50, a first receipt time and a second data cell associated with the first time slot and a second receipt time later than the first receipt time, with respect to 55-64 and 71-73, a switching fabric that includes a plurality of fabric gateway components coupled to a plurality of multiplexer/de-multiplexer components, with respect to claims 62-64, a switch fabric that includes a plurality of fabric gateway components, a first set of configurable components coupled to a plurality of fabric gateway components, with respect to claims 76-82, buffering the plurality of cells in a plurality of virtual output queues (VOQ) wherein a first VOQ being associated with the first priority value and the second priority value, each remaining VOQ from the plurality of VOQs being uniquely associated with a remaining priority value from the plurality of priority values.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prenell P. Jones whose telephone number is 571-272-3180. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Prenell P. Jones



November 21, 2005



CHIEH M. FAN
SUPERVISORY PATENT EXAMINER